

CLAIMS

What is claimed is:

1. A single cavity dual membrane Fabry-Perot tunable filter comprising:
a first membrane device comprising a first membrane holding a first mirror structure; and
a second membrane device with a second membrane holding a second mirror structure, which is opposed the first mirror structure, to thereby define a Fabry-Perot cavity between the first mirror structure and the second mirror structure.
2. A Fabry-Perot tunable filter as claimed in claim 1, further comprising a spacer between the first membrane device and the second membrane device for controlling a size of the Fabry-Perot cavity.
3. A Fabry-Perot tunable filter as claimed in claim 1, wherein the first membrane device and the second membrane device include electrostatic cavities for deflecting the first membrane and the second membrane.
4. A Fabry-Perot tunable filter as claimed in claim 1, wherein the first membrane device and the second membrane device are flat mirrors.
5. A Fabry-Perot tunable filter as claimed in claim 1, wherein at least one of the first mirror structure and the second mirror structure is curved mirror structure.
6. A Fabry-Perot tunable filter as claimed in claim 1, wherein, the both the first mirror structure and the second mirror structure are curved mirrors.
7. A Fabry-Perot tunable filter as claimed in claim 1, wherein each of the membrane devices comprises a substrate, the membranes being deflected by the establishment of an electrostatic drive voltage between the substrates and the membranes.

8. A Fabry-Perot tunable filter as claimed in claim 7, further comprising an optical port through the substrate of at least one of the first membrane devices and the second membrane device.
9. A Fabry-Perot tunable filter as claimed in claim 1, wherein the mirror structures comprise highly reflecting dielectric mirrors.
10. A Fabry-Perot tunable filter as claimed in claim 1, wherein a drive voltage generator establishes a voltage between the substrates of the membranes and the membranes.
11. A Fabry-Perot tunable filter as claimed in claim 1, wherein a drive voltage generator establishes a drive voltage between the membrane of the first membrane device and the membrane of the second membrane device.